

ACCESSION NR: AP4010562

S/0291/63/000/006/0066/0070

AUTHORS: Askarov, M.A.; Stratu, Z.A.

TITLE: Investigation of the polymerization of acrylonitrile and butyl methacrylate in the presence of metallic lithium and lithium amide in aqueous ammonia

SOURCE: Uzbekskiy khimicheskiy zhurnal, no. 6, 1963, 66-70

TOPIC TAGS: polymerization, acrylonitrile, butylmethacrylate, lithium, metallic lithium, lithium amide, aqueous ammonia

ABSTRACT: The polymerization of acrylonitrile and butylmethacrylate in aqueous ammonia was carried out at low temperature in the presence of blue lithium and lithium amide solutions. Polymers in high yields, with a specific viscosity of 0.23 for polyacrylonitrile and 0.8 for polybutylmethacrylate, were obtained. It was found that the amount of catalysts, the reaction time, temperature, and the medium in which the polymerization was carried out exert an influence on the polymerization. The reaction process is described.

Card 1/2

ACCESSION NR: AP4010562

Orig. art. has 1 table.

ASSOCIATION: Institute khimi. polimerov AN U.SSR (Institute of  
polymer chemistry, AN, U.SSR)

SUBMITTED: 02Aug63

DATE ACQ: 11Feb64

ENCL: 00

SUB CODE: OH

NO REF SOV: 005

OTHER: 002

Card 2/2

ROBU, V.I., dr. ing.; TARAN, C., ing.; STRATULA, C., ing.

Desulfurization of refinery gases. Petrol si gaze 14 no.10:  
503-508 0'63.

COUNTRY	:	Rumania	B-8
CATEGORY	:		
AB3. JOUR.	:	RZKhim., No. 21 1959, No.	74202
AUTHOR	:	Angelescu, E. and Stratula-Angelescu, A.	
INST.	:	C. I. Parhon University	
TITLE	:	The Equilibrium Between the Two Liquid Phases in the Three-Component System Phenol-Phloroglucinol-Water	
ORIG. PUB.	:	An Univ 'C. I. Parhon', Ser Stiint Natur, No 19, 55-64 (1956)	
ABSTRACT	:	<p>The effect of symmetric triphenol (phloroglucinol) on solubility in the system phenol-water has been investigated. An increase in the phloroglucinol content lowers the critical solution temperature. Increasing the concentration of phloroglucinol in the system leads to the formation of peritectic points, characterized by the coexistence of two liquid phases and one crystalline phase.</p>	

S. Byk

CARD: 1/1

STRATULAT, Mihai, ing., candidat in stiinta tehnice

Principles of thermodynamics. St si Teh Buc 16 no.4:40-41 Ap '64.

STRATULAT, M., ing.

The MZ ES-300 motorcycle. St si Teh Buc 14 no.9:45 S '62.

STRATULAT, V.S.

PRENDEL', A.R.; STRATULAT, V.S.

Blood-sucking Diptera of the south Ukrainian forest-steppe. Med.  
paraz.bol.supplement to no.1:57 '57. (MIRA 11:1)

1. Iz Odesskogo universiteta i protivomalyariynoy organizatsii  
Odessko-Kishinevskoy zheleznoy dorogi.  
(UKRAINE--MOSQUITOES)

STRAUB, F. Bruno, akadémikus

Appeal for contest. Term tud kozl 7 no.5:203 My '63.

1. Magyar Tudományos Akadémia Biológiai Osztálya titkára,  
Budapest.

VENETIANER, P.; STRAUB, F.B.

Enzymic formation of the disulfide bridges of ribonuclease.  
Acta physiol. acad. sci. Hung. 24 no.1:41-53 '63.

1. Institute of Medical Chemistry, Medical University, Budapest.  
(PANCREATIC EXTRACTS) (RIBONUCLEASE)  
(PROTEIN METABOLISM) (CHROMATOGRAPHY)  
(BIOCHEMISTRY) (CATTLE) (SULFIDES)

**CA**

**REACTION OF ADENOSINE TRIPHOSPHATE WITH MYOSIN A.** F. B. Straub. *Studies Inst. Med. Chem., Univ., Szeged, Hung.* 1, 43-6(1941-1942). Myosin A soln. has a high viscosity at a lower pH and a lower salt concn. This viscosity decreases on addn. of adenosine triphosphate, which reacts with myosin A in the same ratio as with myosin B binding one g.-mol. adenosine triphosphate per 100,000 g. myosin.  
Esteran Etnaly

**ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION**

**E-Z-28**

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**SUBJECT INDEX**

**1ST AND 2ND ORDERS**

**3RD AND 4TH ORDERS**

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**OPEN**

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<p>ca</p> <p>Actin. P. B. Straub, <i>Studies Inst. Med. Chem., Univ. Szeged, Hung.</i> 2, 3-15(1942); 3, 23-37(1943).--To prep. actin, add to 100 g. of minced rabbit muscle 300 ml. of Weber's soln., stir mechanically for 20 min. at 0°, centrifuge, and remove the soln. Let the residue stand in a cold room for 1-2 days, then stir up with 5 times its vol. of distilled water and centrifuge again; mix the residue with 4 vols. of acetone. After 10 min. suck off the acetone and wash the residue with 1 vol. of acetone. After 10 min. suck off the acetone again and dry the residue overnight on filter paper. Ext. the dry muscle residue with 20 vols. of distilled water and centrifuge; the soln. obtained contains the actin. It can be further purified by isoelec. pptn. or pptn. by Ca ions. Actin has a high viscosity, thixotropy, and strong double refraction, due to a great mol. asymmetry. Ca and K ions showed antagonistic effects on actin. Two different forms of actin were observed. Inactive actin (I) is present in the absence of salts, active actin (II) in presence of salts. Both forms of actin can be combined with myosin. Actomyosin is formed if II reacts. If, however, I and myosin are brought together in salt soln., a complex named inactive actomyosin is formed. The latter is easily transformed to active II by addn. of small amounts of any salts which do not destroy the protein. This reaction is doubtless reversible. II is transformable into I by dialysis under certain conditions. During such transformations profound changes in viscosity and double refraction were observed. A method is described for assaying mixts. of II and I. Also the factors influencing the activation of actin (effects of time, temp., salt concn. and H ions) were investigated. At a low concn. of salts the activation is considerably retarded after a rapid rise and the end point is reached only very slowly; this fact shows the multimol. nature of the reaction.</p> <p>István Farkas.</p>																																																			
<p>ASME SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>2200: 157 22154</p>																																																			

1ST AND 2ND COLUMNS		PROCESSES AND PROPERTIES INDEX		142 AND 4TH COLUMNS	
CA				11A	
<p>The actomyosin of rabbit muscle. K. Balenovic and P. B. Straub, <i>Studies Inst. Med. Chem., Univ. Zagreb, Hung. 2</i>, 17-24(1912). The actin bound by the muscle was detd. by measuring the amount of myosin which could be fully activated by 1 g. of the muscle. Thus the av. rabbit muscle contained about 25.80 mg. actin in each g. The actin content reaches about 12-15% of total protein content. Such an amount of actin can cause max. activation of the myosin present in muscle (170% activity). The alkaline salt soln. of Weber's alk. salt soln. extd. an actomyosin of 100% activity. Istvan Fenyu</p>					
<p>ASSOCIATED METALLURGICAL LITERATURE CLASSIFICATION</p>					
142 AND 4TH COLUMNS		142 AND 4TH COLUMNS		142 AND 4TH COLUMNS	

ca

11F

AMINOPHERASE. P. Lénard and F. B. Straub. *Studies Inst. Med. Chem., Univ. Szeged, Hung.* 2, 50-72 (1942).  
 The reactions (1) oxalacetic acid + glutamic acid → aspartic acid + α-ketoglutaric acid and (2) pyruvic acid + glutamic acid → alanine + α-ketoglutaric acid were studied. The catalyst for reaction (2) is designated glutaminopyruvic aminopherase. The purified enzyme was 500 times more active than heart-muscle tissue. Enzyme activity was detd. by the salicylaldehyde method of Straub (C.I. 31, 1019). The pure enzyme sepd. from pig heart shows a remarkable stability toward heat and a considerable resistance toward acid media. At room temp. it is stable at pH 3-11. Alk. destroys the enzyme even at 0°; acetone has no effect. Boiled muscle juices or boiled enzyme solns. have no effect on the increase of activity. István Földi

AS 5-51.4 METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CIPHERS																										3RD AND 4TH CIPHERS																									
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<div style="display: flex; justify-content: space-between;"> <span>ca</span> <span>11F</span> </div> <p>The specificity of the adenosinetriphosphoric acid effect.  F. B. Straub, <i>Studies Inst. Med. Chem., Univ. Szeged, Hung.</i> 3, 38 0(1943). Actomyosin in a soln. of 0.01 M KCl is split into actin and myosin on the addn. of minute quantities of adenosinetriphosphoric acid. The same effect is produced by inorg. pyrophosphate. The effect of the former is almost instantaneous; that of pyrophosphate requires more time and depends on the temp. at 23° or above there is no effect at all. Adenosinetriphosphoric acid is fully active even at 37.5°. Probably, the pyrophosphate group of adenosinetriphosphoric acid is responsible for the viscosity effect. Actomyosin threads at 1.3" do not contract on addn. of inorg. pyrophosphate, but contract on addn. of adenosinetriphosphoric acid.</p> <p style="text-align: right;">István Fényi</p>																																																			
<div style="display: flex; justify-content: space-between;"> <div> <p>140000</p> <p>140000</p> </div> <div> <p>140000</p> <p>140000</p> </div> <div> <p>140000</p> <p>140000</p> </div> </div>																																																			

**Extraction of myosin.** F. Guba and F. H. Straub, *Studies Inst. Mol. Chem., Univ. Szeged, Hung.* **3**, 168 (1945). **Extraction of rabbit muscle with salt solutions.** gives actomyosin of varying activity. The method of mincing, the pH value, salt concn., and time of extr. influence the amount and activity of the prepn. The extr. of coarsely minced rabbit muscle for 10 min. at 0° with 3 vols. of a soln. consisting of 0.15 M KCl phosphate buffer of pH 6.5 and 0.3 M KCl gives actomyosin of 3% activity. This concentration was reached after a great no. of expts. 1-4.

ca

11F

**The viscosity of myosin.** F. Guba and E. H. Straub, *Studies Inst. Med. Chem., Univ. Szeged, Hung.* 3, 19 (5) (1943). Viscosity values of myosin, detd. formerly, seem to be anomalous owing to impurity of former myosin preps. Twice-recrystd. myosin was used to obtain reliable new data. The viscosity was measured at 0.1 m 0.01 M KCl soln. buffered by veronal-acetate to pH 7.0. The values obtained show that the viscosity of myosin is not anomalous, values of dil. solns. were proportional to their myosin content.

Istvan Erdelyi

ASAC SLA METALLOPROTEIN LITERATURE CLASSIFICATION

*Straub, F. B.*

The composition and polymerization of actin. G. Feuer, P. Molnár, B. Pettkó, and F. B. Straub. *Hung. Acta Physiol.* 1, 150-63(1948).--To prep: actin, 100 g. of ice-cooled, fresh rabbit muscle is minced, suspended in 300 ml. ice-cold 0.3 M KCl soln. contg. sufficient 0.15 M K phosphate buffer soln. to maintain pH = 6.5, stirred for 10 min., treated with 1200 ml. distd. water, filtered, the residue suspended in 5 vols. of 0.4% soln. of NaHCO<sub>3</sub> at 22-5°, kept at this temp. with continuous stirring for 30 min., filtered, the residue suspended in 1 vol. of a soln. 0.01 M in NaHCO<sub>3</sub> and 0.01 M in Na<sub>2</sub>CO<sub>3</sub>, the temp. being kept below 10°, stirred for 10 min., dild. with 10 vols. of water at 22-5°, and filtered. For every 100 g. of residue is added 300 ml. of acetone at 22-5°, the mixt. stirred for 10 min., filtered, the residue treated with 1/2 the previous quantity of acetone, stirred 10 min. pressed out, and dried at room temp. One g. of the dry powder is treated with 20 vols. of CO<sub>2</sub>-free water at room temp. for 15-20 min., and filtered. The soln. contains 4-8 mg. actin per ml. If an actin soln. free of salts is dild. with 10 vols. of acetone and a few drops of an acetate buffer of pH 4.6 is added, actin is pptd. and the lipides remain in soln.

After polymerization the actin soln. had an apparent sp. viscosity of 1.7. The amino acid contents (N contents of the respective amino acid as percentages of the total N content of amino acids) were tryptophan 0.22, tyrosine 1.45, phenylalanine 0.0, arginine 1.60, histidine 2.46, lysine 11.48, cystine 1.41, glutamic acid 5.49, aspartic acid 10.97, proline 5.08, hydroxyproline 1.22, glycine 8.30, and methionine 0.0; amide N was 11.60, undetd. N 40.0%. The Ca content of actin averaged 0.215%, the Mg content 0.006%. Since the soln. just passes a 10% collodion membrane prepd. according to Bechhold its mol. wt. cannot be higher than 70,000. The polymerization of actin observed on addn. of various salts caused no appreciable changes in the absorption spectrum. The rate of polymerization under the effect of univalent cations had a max. at concns. of 0.10-15 M. The effect of Mg ions apparently was due not so much to an increase in the velocity of polymerization as to a reduction of the time lag. Without Mg there seems to be no polymerization. Polymerization seems to be a series of reactions in which Mg affects the first step, without which reaction KCl cannot effect the polymerization of actin. Ca alone showed effects similar to those of Mg. In the presence of univalent ions, as K or Na, Ca

ASN-SLA METALLURGICAL LITERATURE CLASSIFICATION

decreased the rate of polymerization. Oxidizing agents prevented the polymerization of actin, and even destroyed polymerized actin. If this oxidation is not too drastic the effect is reversible, i.e., on addn. of reducing substances the original polymerized actin can be reconstituted. The reconstitution decreased the stability. Mg ions seemed to combine with the oxidizable group and thus take part with this group in converting the particles of globular actin into particles of fibrous actin. Mg ions stabilized the products of polymerization against mechanical forces but seemed to make them more accessible to oxidizing agents. Actin gradually loses its ability to polymerize and to form actomyosin. This can be prevented by dialyzing against a soln. of boiled actin or against a dild. boiled muscle juice, or by washing the isoelec. ppt. of actin with a dild. acetate buffer soln.

István Finály

5/2 G. Finály, T. Finály,

VE. 1.1.1. F.F.D. STAN-

CA

112

The action of adenosine triphosphate on the isolated frog heart. I. Lichtnecker and E. W. Straub (Univ. Siegen, Hung.). *Hung. Acta Physiol.* 2, 50 (1949) (in English). Experiments on the isolated heart of *Rana esculenta* suspended on a Straub cannula showed that the toxic effect of quinine consists of several different effects. When minute doses of quinine were cautiously administered, the amplitude of the heart decreased slowly and other heart functions were not disturbed. In such cases the administration of a soln. contg. 0.001 g/ml. adrenaline or 0.5 g/ml. adenosine triphosphate (ATP), improved heart functions in a few min. and caused a lasting recovery even in the presence of quinine. When, however, a quinine dose which rapidly reduced the amplitude of heart beats was administered, the recovery was rather slow and much higher doses of adrenaline or ATP were needed. The effect of adrenaline was inhibited by 0.01 mg/ml. *ergotamine*, which alone had no influence on the amplitude of the quinine-treated frog heart. The effect of adrenaline on the quinine-treated isolated heart was observed both in summer and in winter frogs. The ATP effect, on the contrary, was observed exclusively in summer frogs and was absent during the winter season. A transition period was observed during Sept.-Nov. and March-April,

when higher amounts of ATP were necessary to obtain the same effects. The optimum effects were observed from June to August. Neither adenylic acid nor pyrophosphate showed any effects on the quinine-treated heart. Ergotamine did not inhibit the ATP effect. When ATP was hydrolyzed in 1.0 N HCl 7 min. or in baryta water 30 min., its activity disappeared. The fractionation of the ATP prepn. with Hg, Ba, or acetone yielded fractions with a proportionate activity, proving that the effect is not due to any contamination but to ATP itself. An ext. of frog muscle in Ringer soln. diltd. to 1:100 (referring to the original muscle wt.) restored the normal amplitude of the quinine-treated heart in the presence of quinine. A similar effect was observed with an ext. of rabbit muscle. When such Ringer solns. contg. only 10% of the normal Ca content were used, the heart amplitude decreased. If 0.005 g/ml. ATP or 0.01 g/ml. adrenaline was added to this Ca-deficient Ringer soln., the heart amplitude was greatly improved. The results are explained by assuming that the effective concn. of a substance is reduced by quinine on the surface of muscle fibers. This substance is necessary for the initiation of muscle contraction. ATP is either identical to this substance or is a precursor of it. Adrenaline catalyzes its formation. István Fiala

CA

11A

Effect of drugs on actin. G. Feuer and P. B. Straub  
(Univ. Szeged, Hung.). *Hung. Acta Physiol.* 2, 58-63  
(1949) (in English).—Actin was prepd. by the method de-  
scribed in a former paper (C.A. 43, 9095d). The rate of  
polymerization of actin was detd. as a function of the K:Ca  
ratio, and the effect of acetylcholine, adrenaline, veratrine,  
quinine, and strychnine on the polymerization of actin was  
examd. Acetylcholine had no effect, adrenaline enhanced,  
and the others inhibited the polymerization. It is sup-  
posed that the polymerization of actin is the result of several  
catalytic processes. The catalytic protein may be actin  
itself, or, less probably, several proteins may contaminate  
the protein of actin. The relative concn. of these catalytic  
centers may be different in the various actin preps., and  
this may be the cause of divergent results. Actin seems to  
consist of only one protein component, viz., a prosthetic  
group. The peculiar dependence of the action of adrenaline,  
veratrine, and quinine on the K:Ca ratio suggests that these  
drugs act on specific processes. Adrenaline seems to act  
on one process which is not the limiting factor at physiol.  
Ca:K ratios. István Fényi

CA

112

The active substance of muscle extracts increasing the performance of the hypodynamic frog heart: adenosine triphosphate. B. Pettko and F. B. Straub (Univ. Siegen, Hong K. *Hong Kong Physiol.* 2, 114-118 (1949) (in English)).

An isolated frog heart suspended on a Straub cannula was made hypodynamic by treating with a quinine-contg. Ringer soln. and the effect of dild. muscle exts. studied. Adenosine diphosphate (ADP) in doses of 0.5 µg. restored the normal amplitude of the hypodynamic heart and was as effective as adenosine triphosphate (ATP). Actin solns. restored the normal amplitude of the Ca-deficient frog heart far above that expected on the basis of total Ca content. A boiled actin soln. contg. 4 mg. protein/ml. was effective in a dild. of 1:100, even when the Ringer soln. contained only 18-20% of the normal Ca content. ATP was isolated from actin solns., and the ATP content of actin was about 10%, calcd. on the basis of its protein content. A boiled actin muscle ext. had effects on the frog heart similar to those of a boiled actin soln. Other expts. proved that ATP in muscle tissue is strongly bound to proteins and is not decomposed by the adenosinetriphosphatase system. The active substance was sepd. from horse-muscle tissue by a

spectral procedure. From 2.5 kg. muscle tissue 90 mg. of a product contg. adenine 30.1, ribose 31.0, total P 10.5, and inorg. P 1.15%, was obtained. The inorg. P content was 4.2% after a 30-min. hydrolysis in 0.25 N H<sub>2</sub>SO<sub>4</sub> at 100°. The ratio of hydrolyzable P to total org. P was 1:3.08. The absorption spectrum of the product was identical to that of adenine. The high ribose and adenine content and the ratio of hydrolyzable P to total P suggest that the substance consists of a mixt. of adenylic acid, ADP, and possibly ATP. Its activity is definitely due to its ADP content. The estd. content of wet stored horse muscle tissue is 0.2-0.3 mg./g. ADP. ADP in the tissues is never completely decomposed. A const. percentage of the total ATP content in skeletal muscle, heart muscle, liver, and kidney is not split by the enzymes of tissues, even if they are exposed for a long time to their effect. This fraction of ATP is probably bound to proteins as ADP. The active substance in muscle exts. and actin solns. which restores the normal function of the quinine-treated isolated frog heart is definitely identical with ATP. *Isidor Finkbe*

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<p>2595 Availability of Isotopes in Biochemistry. Bruno F. Straub. <u>Magyar Kém. Lapja</u> 4, 385-7(1949).</p> <p>A review of studies in the field of biochemistry performed with isotopes shows, the author claims, that there is a dynamic balance in apparently unchanging cells during the continuous formation and decomposition of ingredients; this balance is disturbed by any excitation and results in observable changes.</p>																									
<p>ASB SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>SEARCHED BY: [ ] INDEXED BY: [ ]</p>																									

C. A.

The hemophilic factor. Bruno F. Straub, *Oroon*  
*Heisap* 90, 230-4(1949).—The transformation of inactive  
 thrombokinase to an active kinase takes place slowly in the  
 blood of persons suffering from hemophilia. This shows  
 that the development of thrombin and blood coagulation is

slower than normal. Fresh oxalated cattle plasma filtered  
 through a Berkefeld filter behaved in respect to coagulation  
 just as the blood of hemophiliacs. The characteristic hemo-  
 philic factor could be adsorbed at pH 5.5-6.0 on kaolin, then  
 subsequently eluted by borate solu. pH 9-10. The 2nd elu-  
 ate in a repeated treatment contained the factor in a rela-  
 tively high purity. A solu. of this factor contg. 0.1-2 mg.  
 protein/ml. decreased the normal 30-min. recalcification  
 period of the plasma filtered through a Berkefeld filter to 1-2  
 min. at 20° if added to the plasma in a ratio 1:1 or 1:2.  
 The isolated factor contained no fibrinogen or fibrin. Its  
 activity was destroyed by treatment with acetone, EtOH,  
 CCl<sub>3</sub>COOH, and heavy metal salts. Ether did not affect  
 its activity. Heating above 40° decreased its activity  
 and fully stopped activity at 50°. The activating energy  
 needed for heat denaturation of the substance was about  
 50,000 cal., showing the protein character. Collodion film  
 with pores of sizes of a hemoglobin mol. was impermeable  
 to the substance. The normal 30-40 min. coagulation  
 period of the Mellanby fibrinogen was diminished to 2-3  
 min. by the substance. In hemophiliacs the substance de-  
 creased the coagulation period of 30-60 min. of the hemo-  
 philic blood to 4-6 min. No toxic symptoms were observed  
 in rabbits on intravenous injection of the substance. An-  
 aphylactic shock did not occur on reinjection. I. F.

C.A.

11A

- Adenosine triphosphate as a functional group of actin.  
Bruno F. Straub and Gyorgy Feuer (Univ. Szeged, Hung.).  
*Kisfelelet Orvostudomány* 2, 141-51(1950).—Actin in its  
globular form contains adenosine triphosphate (ATP) 0.8%  
1.47%. The compn. of the salt  $\text{Ba}_2\text{ATP} \cdot 4\text{H}_2\text{O}$  is N 7.07,  
inorg. P 0.42, total P 9.4, and ribose 17.6% (Mejbaum).  
The ATP of actin is transformed to adenosine diphosphate  
(ADP), with formation of inorg. phosphate, when the pro-  
tein of actin is polymerized by a salt. This polymerization  
and an increase of viscosity in actin took place under the effect  
of any salt at any temp., and at any pH. Depolymeriza-  
tion occurs when ADP is reconverted to ATP in the protein  
of actin. This process plays a significant role in muscle  
contraction. Apyrase prepd. from potato decompd. only  
a small fraction of ATP in a soln. of globular actin, but very  
vigorously decompd. solns. of actin denatured by heat  
treatment or of polymerized actin. An analogy seems to  
exist between polymerization of actin and activity of phos-  
phorylase; inorg. phosphate is freed during both processes.  
Pure actin contained no trace of enzymes; the transforma-  
tion  $\text{ATP} \rightarrow \text{ADP}$  is therefore a nonenzymic activity.

Istvan Földi

1950

CA

11A

Adenosine triphosphate, the functional group of actin. F. B. Straub and G. Feuer (Univ. Szeged, Hung.). *Biochim. et Biophys. Acta*, 4, 455-70(1959) (in English). — When actin polymerizes upon actin. of any salt, 4) 80°C. of the ATP it contains disappears. Whether polymerization or disappearance of ATP is the primary process could not be decided, but it was found that 1.18 mols. inorg. P were formed per mol. ATP which disappeared, that this is a true dephosphorylation and not a transphosphorylation (no labile phosphate esters are formed), and that probably ADP is formed. Evidence is furnished by incubation of a  $\text{Cl}_2\text{CCOOH}$  filtrate of polymerized actin with myokinase which increases the ATP content markedly after 30 min. It appears that polymerization of actin is connected with simultaneous formation of ADP and inorg. P from the ATP present in actin; thus, globular actin is ATP-actin, and ADP-actin, if formed, is in the fibrous state. When incubated with purified potato apyrase, it could be demonstrated that the ATP in actin is bound to the protein, because both polymerized actin and denatured actin reacted with the apyrase analogously to its decompos. of free ATP. From dialysis expts. it was concluded that ATP, which can be removed only after long dialysis, is in disson. equil. with the protein. Incubation of actin with a large excess of apyrase resulted in the formation of a protein whose ability to polymerize was inhibited. It was also shown that the inactivation of actin during dialysis and isoelect. washing is due to disappearance of ATP. Boiled muscle expts. and ATP prevent this inactivation, as will also reducing substances, like vitamin C (probably by strengthening the protein-ATP bond). Studies in the reversibility of the polymerization showed that upon dialysis of polymerized actin against ATP and vitamin C, a globular form could be regenerated which in all respects behaved like the original starting material. Eric Ellenbogen

STRAUB, F. I. 1951

(Biochemical Inst. Univ. Budapest)

"To What Degree can Actomyosin Filaments be Regarded as Muscle Model?"

Acta Physiol, Budapest, 1951 2/1 suppl (6)  
No abst. in Exc. Med.

STRAUB, R.

Straub, R.; Szoke, S.-

"Glutinous Bread." n. 337 (Elemezesi Inar. Vol. 5, no. 11, Nov. 1951. Budapest)

SO: Monthly List of East European Accessions. Vol. 3 No 6 Library of Congress, Jun 54, Uncl.

STRAUB, F. B.

Chemical Abstracts,  
v. 47, July 10, 1953,  
Biological Chemistry

Adenosinetriphosphatase of the erythrocytes. T. Garzó, A. Ullmann, and F. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 3, 513-24(1952)(in German).— Adenosinetriphosphatase (I) was found in hemolyzed erythrocytes (II) of the cat, man, bovine, horse, pig, and rabbit, in the order of increasing concn.. Even after a 40-fold purification of I, it could not be sepd. from the membranes of II. I is activated by  $MgCl_2$  and inhibited by  $0.0005M$   $Ca^{++}$  and by  $0.0005M$   $NaF$ . I is able to split off all three P from the substrate and to hydrolyze pyrophosphate. Peter Bernfeld

SZEKELY, M.; MANYAI, S.; STRAUB, F.B.

On the mechanism of osmotic hemolysis. Acta physiol. hung. 3 no.3-4:571-584 1952. (CLML 24:5)

1. Of the Medical Chemistry Institute of Budapest University.

STRAUB F. B., SZEKELY M., and MANYAI S.

4717. STRAUB F. B., SZEKELY M., and MANYAI S. Med. chem. Inst., med. Univ., Budapest.  
\* Die Wirkung der Hämolyse auf den Stoffwechsel der roten Blutkörperchen beim Menschen.  
Effect of haemolysis on the metabolism of human erythrocytes ACTA PHYSIOL.ACAD.  
SCIENT.HUNGAR. (Budapest) 1953, 4/1-2 (31-44) Graph 2 7 Tables 2

The determination of ATP in erythrocytes is described. This permits observation of relationships between ATP content and structure of the cells. For human erythrocytes, osmotic haemolysis does not cause much diminution of the ATP content and the cell membrane remains intact. In haemolysis due to refrigeration the membrane deteriorates and finally liberates a hitherto inactive ATP-ase, which attacks the ATP.  
Roulet - Berne

SO: Excerpta Medica, Section II, Vol 7, No 9

STRAUB, F.B.

Biochemical bases of permeability. Acta physiol. hung. 4 Suppl:3-4  
1953. (CML 25:1)

1. Of the Medical Chemistry Institute of Budapest University.

STRAUB, F.B.

1 Accumulation of potassium ion by human red blood cells.  
F. B. Straub (Med. Univ., Budapest). *Acta Physiol. Acad. Sci. Hungar.* 4: 385-40 (1953) (in German).—Human red blood cells rich in intracellular Na ion were prepd. by treating a suspension of hypotonic cells with isotonic NaCl soln. During subsequent incubation of these cells in 0.147M NaCl and 0.03M KHCO<sub>3</sub>, K ion accumulated from the medium despite an unfavorable K concn. gradient provided fructosediphosphate was being metabolized. The accumulation of K was abolished by the addn. of arsenate, although the formation of lactic acid from fructosediphosphate was not. Therefore, the accumulation of K must depend upon adenosinetriphosphate rather than on glycolysis as such. M. G. Horowitz

S+ RAUB, F.B.

Synthesis of adenosinetriphosphate in slices of brain cortex. G. Acs, R. Balázs, and F. B. Straub (Univ. of Budapest). *Kivérteles Orvostudományi Közlemények* 72(1953); *Ukrain. Biokhim. Zhur.* 25, 17-27 (1953). — The cortex of *in vivo* frozen rat brains contains 1.0-1.5 mg. adenosinetriphosphate (I) per g. fresh tissue. Slices of brain cortex prepd. from the decapitated animal contain only 0.2-0.3 mg./g. (duration of necessary operations 5-10 min.). If the slices are shaken in a mixt. of 95% O<sub>2</sub> and 5% CO<sub>2</sub> in glucose (II)-contg. saline, a resynthesis of I takes place. In rat brain cortex slices the content of I rises to 0.6-0.8 mg./g., in those of guinea pig to 1.0 mg./g. In presence of II this value is maintained for at least 40 min. The slices lose up to 50% of their nucleotides, adenine and ribose appearing in the supernate. The loss is more than can be accounted for by the injury of surface layers. The *in vitro* resynthesis of I requires O and II. Of all substrates tested II is the only one which results in the resynthesis of 0.6-0.8 mg./g. I. In presence of succinate, pyruvate, malate, glutamate, and aspartate, O consumption is raised as well as in presence of II, yet the I level is only 50% of that obtained by II. This is regarded as a biochem. proof of the fact that II is the only adequate substrate for brain cortex. It is concluded that instead of the rate of respiration the I content of slices should be used as a reliable indicator of their physiol. condition. When glutamate is given to the slices with glucose, the content of I is less than in absence of glutamate. The effect depends on the concn. of glutamate, 0.01 M causing a 50% depression of I content. From detn. of the rate of glutamine formation it is concluded that the latter process uses up the high-energy phosphate to such an extent that a decrease of I results. F. B. Straub

STRAUB, F.B.

Enzymatic synthesis of glutamine. Postepy biochem.2:93-99  
1954

(GLUTAMINE, metabolism,  
enzymatic synthesis)

STRAUB, F.B.

Metabolism of erythrocytes. Postepy biochem. Vol.2 100-109 1954  
(ERYTHROCYTES, metabolism)

GÁRDOS Gy and STRAUB F. B.

Chem. Inst., med. Univ., Budapest. \*K-Akkumulation in menschlichen Erythrozyten.  
Accumulation of K in human erythrocytes ACTA PHYSIOL. ACAD. SCIENT. HUNG. (Buda-  
pest) 1954, 5/suppl. (5-6)

SO: EXCERPTA MEDICA - Section II, Vol. 7, No. 10

STRAUB, F. B.

Preparation of enzyme-free actin by precipitation with magnesium. M. Bárány, N. A. Biró, J. Molnár, and F. B. Straub (Med. Univ., Budapest). *Acta Physiol. Acad. Sci. Hungar.* 309-81(1954)(in German).—An improved prepn. of acetone-dried muscle powder was treated with 0.025M  $MgCl_2$  to ppt. purified actin. Actin was thus freed of 15% of the material found in cruder actin. This impurity did not form actomyosin nor was it sedimented after polymerization. Purified actin was reversibly depolymerized by dialysis against adenosinetriphosphate (ATP). During polymerization some of its ATP content was hydrolyzed. The prepn. was not contaminated with creatine phosphoferase, myokinase, adenyllic acid deaminase, hexokinase, or inorg. pyrophosphatase. Thus these enzymes do not play a role in the polymerization and ATP-adenosinediphosphate transformation nor in the actin-myosin formation. 2.

STRAUB, E. D.

Protein synthesis in homogenates. Acta physiol. hung. Suppl.  
no. 6:92-93 1954.

1. Chemisches Institut der Medizinischen Universität, Budapest.  
(PROTEINS, metab.  
synthesis in homogenates)

STRAUB, F.B.

ACS, G.; STRAUB, F.B.

Decrease of peritoneal permeability in Ehrlich ascites carcinoma in mice. Acta physiol. hung. 6 no.2-3:257-260 1954.

1. Chemisches Institut der Medizinischen Universitat, Budapest.

(PERITONEUM, physiol.

permeability in exper. Ehrlich carcinoma in mice)

(OSMOSIS AND PERMEABILITY

peritoneum, in Ehrlich carcinoma in mice)

(NEOPLASMS, exper.

Ehrlich carcinoma, eff. on peritoneal permeability in mice)

STRAUB, F. B.

### HUNG .

✓Activity of adenosinetriphosphatase at the surface of ascites tumor cells. G. Acs, W. Ostrowski, and F. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 6, 281-3(1954)(in German).—Incubation of adenosinetriphosphate (I) with intact cells or with the same amt. of homogenized cells yields the same rate of P liberation. The I-splitting enzyme is believed to be at the surface of the cells.  
Peter Bernfeld

STRAUB F. B.

med 5813. Protein synthesis in a homogenate. A. Ullman and F. B. Straub *Acta physiol. Acad. Sci. hung.*, 1954, 6, 377-378 (Chemical Inst., Med. Univ., Budapest, Hungary).—Pigeon pancreas was homogenised in a glass homogeniser at 0° in the presence of 20 mg./ml. ATP and 0.3M saccharose. The homogenate was shaken at 38° with added 0.4% casein hydrolysate and Krebs-Henseleit saline (pH 7.4). A very considerable increase in amylase activity took place which was a function of time as long as the ATP was not destroyed by the very active ATP-ase of the homogenate. There is no increase in amylase activity without ATP, or casein hydrolysate or saccharose. It could be shown by butanol opening (Hessin, *Biokhimiya*, 1953, 18, 462) that new amylase was synthesised. It was also shown that the gastric mucous membrane of the frog synthesises pepsinogen under similar conditions. The synthesis takes place at the same rate under aerobic and anaerobic conditions. (German) A. B. L. Buznak.

2

STRAUB, F.B.

Metabolism within ascitic cancer cells. U. Acs and F. B. Straub (Med. Univ., Budapest). *Doklady Akad. Nauk S.S.S.R.* 95, 1021-4(1954); cf. El'tsina and Selts, *C.A.* 45, 72289. — White rats infected intraperitoneally with the Ehrlich strain of cancer which causes ascites show a rise of aerobic glycolysis in the cancer cells over some 9 days after the infection, after which it remains const. Glucose does not block cell respiration on the 6th-7th days, and its action becomes apparent only after development of the rise of anaerobic glycolysis. The expts. must use considerable amts. of glucose (2 mg./ml.) and must be run rapidly, owing to the high level of glycolysis. While the fresh cells contain 2.1 mg. adenosinetriphosphate (A.TP)/ml., its content drops to 0.57 in the absence of glucose in the presence of O in 0.5 hr.; at the same time, in the presence of glucose which blocks respiration, the content of ATP rises to 2.8 mg./ml. This indicates the need of the cells for a high level of aerobic glycolysis. In the course of aerobic incubation in the absence of glucose the cell content of P, as detd. by the Fiske-SubbaRow method, rises, while in the presence of glucose it drops. Addn. of 2,4-dinitrophenol slightly increases aerobic glycolysis in the ascitic cells and blocks the action of added glucose on respiration; in the presence of dinitrophenol and glucose the level of Fiske-SubbaRow P remains at a higher level than without dinitrophenol. Thus the reverse Pasteur effect observed in these cells is explained by the control of respiration and glycolysis by the level of inorg. P.

G. M. Kosolapoff ]

Straub, F.B.

Med  
✓ 6000. Synthesis of amylase by homogenates of pigeon pancreas.  
A. Ullman and F. B. Straub *Acta physiol. Acad. Sci. Hung.*, 1953, **5**, 279—290 (Chem. Inst., Med. Univ., Budapest, Hungary).—A high concn. of ATP during homogenisation and incubation is necessary for the synthesis. Absence of  $O_2$  and presence of 0.01 M NaF do not inhibit amylase synthesis. Presence of 0.01 M ascorbic acid increases it. There is no synthesis without the addition of casein hydrolysate and sucrose, and it is inhibited by 100  $\mu$ g./ml. streptomycin and 10  $\mu$ g./ml. chloramphenicol. (German)  
A. B. L. BEZNÁK.

STRAUB, F.B.

✓ Inductive synthesis of penicillinase in cell-free preps. of *Bacillus cereus*. M. Kramer and F. B. Straub (Med. Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 7, 167-9(1955)(in English).—When intact cells of *B. cereus* and *B. megatherium* were treated with penicillin for a short time, the cell-free homogenates of these organisms showed increased penicillinase activity under certain expl. conditions. This increase is inhibited by the addn. of 8-quinolinol, streptomycin, chloramphenicol, and large amts. of penicillin to the cell-free homogenates. The addn. of penicillin after homogenization did not increase penicillinase activity indicating that the whole cell is requisite for the induction. L. H. Muschel MD

STRAUB, F. B.

✓ An explanation of the failure of the Pasteur effect in Ehrlich ascites cancer cells. G. Ács, T. Garzó, G. Grosz, J.

Molnár, O. Stephaneck, and F. B. Straub (Med. Univ., Budapest). *Acta Physiol. Acad. Sci. Hung.* 6: 269-76 (1955) (in German).—Homogenates (in isotonic KCl) of ascitic cells, obtained from mice 9-12 days after inoculation with Ehrlich's ascitic cancer cells, were centrifuged to remove cell membranes and nuclei. The supernatant produced equal amts. of lactic acid from glucose under aerobic and anaerobic conditions, but large amts. of fructose diphosphate (I) (cf. Roe, *C.A.* 29, 1126) accumulated only under aerobic conditions. As such a large accumulation of I is not detected in intact cells, it was assumed that homogenizing changes the relative activities of phosphorylating and dephosphorylating enzymes. After sepp. the mitochondria from the homogenate by centrifuging at 0° for 15 min. at 10000 g, neither fraction showed accumulation of I under aerobic conditions; recombination restored the original situation entirely. It is characteristic for the ascitic cells that almost all the adenosinetriphosphatase (ATPase) is localized in the cell membrane, while most cells of animal origin contain their ATPase in the mitochondria. There is no ATPase activity in the mitochondria of the ascitic cells. The hexokinase activity of mitochondria of the ascitic cells is much greater than that of liver and brain mitochondria; this enzyme is found in the sol. proteins of most cells. The mitochondria of the ascitic cells show a P/O ratio of 2.5-3, while NaF and hexokinase must be added to the mitochondria from other tissues before they show a comparable ratio. The addn. of apyrase to the homogenate prevents the accumulation of I in aerobic conditions; hence, catalytic amts. of adenosinetriphosphate are necessary. Under aerobic conditions and in the presence of glucose and  $5 \times 10^{-4} M$   $ICH_3CO_2H$ , ascitic cells show marked esterification of inorg. P to form I. The failure of the Pasteur effect, i.e., aerobic glycolysis, in these ascitic cells is explained by the peculiar enzyme distribution in the mitochondria which must be responsible for a characteristic glycolytic mechanism.

Straub, F. B.

✓ Amylase synthesis in homogenates. A. Ullmann and F. B. Straub (Med. Univ., Budapest). *Acta Physiol. Acad. Sci. Hung.* 8, 279-90(1955)(in German); cf. *C.A.* 49, 4736c. — Pigeon pancreas homogenates are able to synthesize amylase if adenosinetriphosphate (ATP) is present during the homogenizing and incubation. If no ATP is added during homogenizing, but is added to the incubated medium, little or no amylase synthesis occurs. ATP cannot be replaced by pyrophosphate. Homogenates are capable of aerobic and anaerobic synthesis of amylase; 0.2 mm. thick slices of pancreas require aerobic conditions. Addn. of 0.01M NaF does not inhibit the synthesis, 0.01M ascorbic acid increases the yield of amylase obtained by 10 to 50%, and cysteine has no effect. It is essential that casein hydrolyzate,  $Mg^{++}$ , and sucrose be present. Amylase synthesis was stopped by 100  $\gamma$ /ml. of streptomycin and 10  $\gamma$ /ml. of chloramphenicol. The homogenate loses its synthetic ability after 3 hrs. storage at 0°, presumably because metallic ions, which can activate hydrolytic enzymes, have been liberated during the homogenizing. The addn. of 0.0051M ethylenediaminetetraacetate prevents loss of synthetic ability of homogenates stored at 0°. G. T. CH

①

STRAUB, F. B.

EXCERPTA MEDICA Sec.2 Vol.9/11 Physiology, etc. Nov56

5005. STRAUB F. B., ULLMANN A. and ACS G. Inst. of Med. Chem., Univ. of Budapest. \*Enzyme synthesis in a solubilised system BIO-CHIM. BIOPHYS. ACTA 1955, 18/3 (439) Tables 1

In a previous publication it was shown that homogenates of pigeon pancreas effect synthesis of amylase in a medium containing ATP and a mixture of amino-acids. A soluble extract has now been prepared from pigeon or pork pancreas; when this is incubated under the above-mentioned conditions for 30-60 min. at 37°C., an increase of amylase activity results. This synthesis of amylase is inhibited by *p*-fluorophenylalanine and by ribonuclease.

Dubert - Paris

ULLMANN, A.; STRAUB, F. B.

Increase in amylase activity in isolated cell fractions of  
pigeon pancreas. Act physiol. hung. 10 no.2-4:137-143 1956.

1. Chemisches Institut der medizinischen Universität, Budapest.

(AMYLASE

activity increase in isolated mitochondrial fractions  
of pigeon pancreas (Ger))

(PANCREAS, metab.

amylase activity increase in isolated mitochondrial  
fractions of pigeon pancreas (Ger))

STRAUB, F. B.

2  
 ✓ Role of specific nucleic acid in induced enzyme synthesis.  
 M. Kramer and F. B. Straub (Univ. Budapest). *Biochim.*  
*et Biophys. Acta* 21, 461-2 (1958) (in English).—A much  
 shorter time elapsed before the start of penicillinase (I)  
 production induced by addn. of penicillin in *Bacillus cereus*  
 treated with ribonuclease (II) than in untreated cells, pre-  
 sumably owing to accumulation of nucleic acid precursors in  
 the II-treated cells. The same concn. of II present during  
 the induction period completely prevented the formation  
 of I. A presumably specific nucleic acid present in M NaCl  
 exts. of the mutant strain 559/II, which contains constitu-  
 tive I, led to the formation of I in *B. cereus* in the complete  
 absence of penicillin. The potency of the ext. was destroyed  
 by treatment with II. There was a difference in the kinetics  
 of I production after induction with penicillin and after  
 addn. of the specific nucleic acid fraction.  
 Morton-Pedersen

Straub, F. B.

*Chem* The synthesis of protein. F. B. Straub (Med. Inst., Budapest). *Priroda* 45, No. 2, 38-43 (1956).—Specific surfaces and available energy are indispensable for the formation and orientation of peptide chains. High-pressure resynthesis of proteins in the presence of proteolytic enzymes (Bresler) shows that it is not necessary to assume different specific catalysts for each peptide bond. Arguments for and against the *de novo* synthesis of protein are given. Addn. of adenosinetriphosphate greatly stimulates the net synthesis of amylase in homogenates of pigeon pancreas. By total disintegration of pancreas cells, exts. can be obtained which raise the initial level of amylase by 30-50% per 9.5 hr. A hypothesis is put forward that protein ribonucleic acid (I) units are capable of self-reproduction, according to circumstances, either as the protein or I moiety.  
I. M. Hais

ACS, Gyorgy; STEPHANECK, Ottilia; STRAUB, Bruno F..

Plasma adenosine deaminase activity in various pathological conditions. *Magy. Tudom. Akad. Biol. Orv. Gszl. Kozl.* 8 no. 1-2:118 1957..

1. A Budapesti Orvostudományi Egyetem, Orvosi Vegytani Intézete.  
BUDAPEST MEDICAL UNIV., MED. CHEM. INST.  
(AMIDASES, in blood  
adenosine deaminase in neoplasms, diag. value (Hun))  
(NEOPLASMS, blood in  
adenosine deaminase activity, diag. value (Hun))

STRAUB, F.B.

*clm* ✓ Synthesis of amylase by pancreas in a soluble system. A. Blumstein and P. B. Straub (Univ. Budapest). *Acta Physiol. Acad. Sci. Hung.* 12: 11-21 (1957) (in German). -- An aq. ext. of acetone-dry powder of pancreatic tissue synthesized amylase in the presence of a mixt. of amino acids and a high concn. of adenosinetriphosphate; this system is quite unstable. This enzyme synthesis is inhibited by low concns. of chloramphenicol (1  $\gamma$ /ml.), *p*-fluorophenylalanine (0.1  $\gamma$ /ml.), and ribonuclease. This specificity makes apparent a similarity of the amylase synthesis with protein synthesis from amino acids. O. C. Elmer

GARZO, T.; PERL, K.; SZABO, M. T.; ULLMANN, A.; STRAUB, F. B.

Incorporation of radioactive amino acids and amylase synthesis in pancreatic tissue in vitro. Acta physiol. hung. 11 no.1:23-29 1957.

1. Chemisches Institut der Medizinischen Universität, Budapest.

(PANCREAS, metab.

amylase biosynthesis, utilization of glycine & tyrosine in tissue slices (Ger))

(AMYLASES

in pancreas, biosynthesis & incorporation of glycine & tyrosine in tissue slices (Ger))

(GLYCINE, metab.

pancreas, incorporation in amylase synthesis in tissue slices (Ger))

(TYROSINE, metab.

same)

STRAUB, F.B.

gm The mechanism of amylase synthesis in vitro. A. Ullmann and F. B. Straub. *Acta Physiol. Acad. Sci. Hung.* 11, No. 1, 51-8 (1957) (in German).—In mitochondrial fractions and aq. ext. of acetone-ried pancreas powder, amylase is synthesized from a proenzyme. Threonine, arginine, and adenosinetriphosphate are necessary for the formation of the enzyme. O. C. Elmer

T

Country : HUNGARY  
Category: Human and Animal Physiology. Blood.  
Formed Elements.

Abs Jour: RZhBiol., No 19, 1958, 88650.

Author : Gardos, G.; Straub, F.D.  
Inst : Hungarian Academy of Sciences.  
Title : On the Significance of Adenotriphosphoric acid  
(ATP) in the Potassium Permeability of Human  
Erythrocytes.

Orig Pub: Acta physiol. Acad. sci. hung., 1957, 12, No 1-3,  
1-8.

Abstract: It was demonstrated with the aid of glycolytic  
inhibitors (NaF, monochloroacetic acid,  $\text{Na}_2\text{HPO}_4$ ),  
and also by regeneration of ATP, that the physio-  
logical exchange of K (passage into the erythrocytes

Card : 1/2

T-16

Country : HUNGARY  
Category: Human and Animal Physiology. Blood.  
Formed Elements.

T

Abs Jour: RZhBiol., No 19, 1958, 88650

(E) and back) occurs only under the condition that E contains ATP. With the loss of ATP the accumulation of K in E ceases. The decrease of ATP content leads to rapid passage of K from E in a similar way as it occurs in the shift of metabolism under the effect of NaF and  $\text{Na}_2\text{H}_2\text{SiO}_4$ . The active loss of K is related to changes of the content of 2,3 diphosphoglycerinic acid in E. -- B.P. Shvedskiy.

Card : 2/2

STRAUB, F.B.

Micro-scale isolation of amylase from pancreas. Acta physiol. hung.  
12 no.4:295-297 1957.

1. Institute of Medical Chemistry, Medical University, Budapest.  
    (PANCREAS, metab.  
       amylase, isolation of micro-quantities)  
    (AMYLAASES, determ.  
       in pancreas, isolation of micro-quantities)

STRAUB, F.B.

GARZO, T.; SZABO, M.T.; STRAUB, F.B.

Incorporation of glycine-1-G<sup>14</sup> into the amylase of pancreas tissue slices. Acta physiol. hung. 12 no.4:299-302 1957.

1. Institute of Medical Chemistry, Medical University Budapest, Hungary.

(GLYCINE, metab.

pancreas, incorporation into amylase in pigeon tissue slices.)

(PANCREAS, metab.

amylase, incorporation of glycine in pigeon tissue slices.)

(AMYLASES

in pancreas, incorporation of glycine in pigeon tissue slices.)

STRAUB, F.B.; STEPHANECK, O.; ACS, G.

Plasma adenosine deaminase activity in tumor cases [in English with summary in Russian]. *Biokhimiia* 22 no.1/2:118-121 Jan '57.  
(MLRA 10:7)

1. Institut meditsinskoy khimii, Budapeshtskiy Universitet, Vengriya.

(AMIDASES, in blood,  
adenosine deaminase in cancer)  
(NEOPLASMS, blood in,  
adenosine deaminase)

STRAUB, F.B.

*Mechanism of amylase synthesis. F. B. Straub and A. Ullmann (Univ. Budapest). Biochim. et Biophys. Acta 23, 665(1957) (in English); cf. C.A. 50, 4261a. — Amylase activity in a sol. system from Me:CO-dried pigeon pancreas was investigated. It increased when the salts of a Krebs saline soln., adenosinetriphosphate, and a mixt. of amino acids were added. The amino-acid mixt. could be replaced by arginine + threonine, and addn. of further amino acids was without effect. The increase in amylase activity was inhibited by the addn. of minimal amts. of D(-)-threo-chloramphenicol, p-fluorophenylalanine, or ribonuclease. It is suggested that amylase is synthesized in the sol. system from a precursor protein, that the arginine and threonine are used in the synthesis, and that synthesis proceeds only in the presence of a ribonucleic acid. The precursor apparently is adsorbed on this surface. Similar requirements were found for the synthesis of amylase by pigeon pancreas mitochondria.*

*Morton Pader*

STRAUB, F. Bruno, dr.; STEPHANECK, Ottilia; ACS, Gyorgy, dr.;  
SELLEI, Camillo, dr.

Measurement of adenosine deaminase activity in blood plasma  
as tumor diagnostic test. Orv. hetil. 98 no.10-11:256-259  
17 Mar 57.

1. A Budapesti Orvostudományi Egyetem Orvosi Vegytani  
Intézete és Országos Onkológiai Intézet belosztályának  
közleménye.

(NEOPLASMS, diag.

adenosine deaminase determ. in blood plasma (Hun))

(AMIDASES, in blood

adenosine deaminase determ. in blood plasma in  
neoplasm diag. (Hun))

ULLMANN, A.; GARZO, T.; STRAUB, F.B.

On the formation of labelled amylase in cell free preparations. Acta  
physiol. hung. 13 no.2:179-181 1958.

1. Institute of Medical Chemistry, Medical University, Budapest.  
(AMYLA~~SES~~  
form. from precursor in cell-free prep.)

STRAUB, Bruno, F., Dr.

Dr. Imre Szorenyi, 1905-1959. Orv. hetil. 100 no.7:237 15 Feb 59.

(OBITUARIES

Szorenyi, Imre (Hun))

GARZO, T.; SZABO, Maria T.; STRAUB, F.B.

Amino acid incorporation in pigeon pancreas and in pigeon pancreas  
amylase in the presence of various inhibitors. Acta physiol. hung.  
17 no.2:213-223 '60.

1. Institute of Medical Chemistry, Medical University, Budapest.  
(AMINO ACIDS metab.)  
(PANCREAS metab.)  
(AMYLASES metab.)

CSANYI, V.; KRAMER, M.; STRAUB, F.B.

Purification of the ribonucleic acid inducing penicillinase  
formation in *B. cereus* cells. *Acta physiol.hung.* 18 no.3:171-178  
'60.

1. Institute of Medical Chemistry, Medical University, Budapest.  
(RIBONUCLEIC ACID chem)  
(PENICILLINASE chem)  
(BACILLUS chem)

STRAUB, F.Bruno, akademikus, ego.tanar (Budapest)

Joint symposium of clinicians and biologists on wound healing.  
Magy tud 68 no.3:188 Mr '61. (EEAI 10:6)

1. Intezeti igazgato, Magyar Tudomanyos Akademia Biokemiai Kutato  
Intezet, Budapest.  
(Hungarian Academy of Sciences) (Wounds)

STRAUB, F. Bruno, akadémikus, egy. tanár (Budapest); ELODI, Pal, az  
orvostudományok kandidátusa (Budapest)

The Biochemical Institute of the Hungarian Academy of Sciences.  
Magy tud 68 no.4:237-240 Ap '61. (EEAI 10:6)

1. Intezeti igazgató, Magyar Tudományos Akadémia Biokémiai  
Intézete, Budapest (for Straub). 2. Tudományos főmunkatárs,  
Magyar Tudományos Akadémia Biokémiai Intézete, Budapest (for Elodi)  
(Hungarian Academy of Sciences)  
(Hungary--Biochemistry)

STRAUB, F. Bruno, akadémikus, egyetemi tanár; CSUZI, Sándor, egyetemi tanársegéd; VENETIANER, Pál, egyetemi tanársegéd

The 5th International Congress on Biochemistry in Moscow.  
Magy tud 68 no.12:765-766 D '61.

1. Magyar Tudományos Akadémia Biokémiai Intézete, Budapest (for Straub). 2. Budapesti Orvostudományi Egyetem (for Csuzi and Venetianer).

STRAUB, F. Bruno; ERNST, Jeno; JUVANCZ, Ireneus; BALOGH, Janos;  
SZENTAGOTHAJ, Janos, dr.; TORO, Imre, dr.; BALINT, Andor;  
BARTUSZ, Lajos

An account of the 1962 work made by the directorate of the  
Biological Section. Biol tud kozl MTA 5 no.3-4:165-202 '62.

1. "A Magyar Tudományos Akademia Biologiai Tudományok Osztálya-  
nak Közleményei" szerkesztője (for Straub). 2. "A Magyar  
Tudományos Akademia Biologiai Tudományok Osztályának  
Közleményei" szerkesztő bizottsági tagja (for Szentagotthai  
and Toro).

STRAUB, Bruno F., Dr., akademikus

New perspectives in the development of biochemistry. Term tud  
kozl 6 no.2:82 F '62.

STRAUS, F. Bruno, dr., akademikus, egyetemi tanar

The Fugwash conferences. Term tud tozl 6 no.8:371-372  
Ag '62.

~~SHTRAUB, F.B.~~ [Straub, F.B.], prof.; BIRO, Zh. [Biro, G., translator];  
MAYUS, M. [Maiusa, M.; translator]; MESAROSH, I. [Mesarosa, I.,  
translator]; MILE, I. [translator]

[Biochemistry] Biokhimiia. Budapest, Akademiai Kiado, 1963.  
715 p. (MIRA 16:8)

1. Meditsinskiy universitet, Budapesht (for Shtraub).  
(Biochemistry)

STRAUB, F. Bruno, dr., akadémikus; SOO, Rezso, dr., akadémikus; TOTO, Imre, dr., akadémikus; DUDICH, Endre, dr.

An account of the work of the Division of Biological Sciences, Hungarian Academy of Sciences. Biol oszt kozl MTA 6 no.3/4:173-215 '63.

1. Magyar Tudományos Akadémia Biológiai Tudományok Osztálya titkara;  
"A Magyar Tudományos Akadémia Biológiai Tudományok Osztályának Köz-  
leményei" szerkesztője (for Straub). 2. Magyar Tudományos Akadémia  
levelező tagja (for Dudich).

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HUNGARY

CSANYI, Vilmos, KRAMER, Miklos, STRAUB, Ferenc, Bruno; Medical University of Budapest, Institute of Medical Chemistry (Budapesti Orvostudományi Egyetem, Orvosi Vegytani Intézet).

"Uptake and Distribution of Nucleic Acids by B. Cereus Cells."

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol XXIII, No 4, 1963, pages 323-332.

Abstract: [English article, authors' English summary modified] There occurs a high incorporation of  $P^{32}$  into the DNA fraction of B. cereus cells when a fully  $P^{32}$  labelled phenol-RNA from the same species is added to the culture. The phenomenon occurs only if the receptor cells are pretreated with RNase. The incorporation into DNA can be inhibited by chloramphenicol and 8-azaguanine. The labelling of the DNA is the result of a selective uptake of the DNA present in trace amounts in the RNA of B. cereus, regardless of the methods of purification used by the authors. DNA has to be in a highly polymeric state to be taken up selectively by the receptor cells. The possible mechanism and the biological significance of the effect are discussed. 2 Hungarian, 20 Western references.

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HUNGARY

CSANYI, Vilmos, KRAMER, Miklos, STRAUB, Ferenc, Bruno; Medical University of Budapest, Institute of Medical Chemistry (Budapesti Orvostudományi Egyetem, Orvosi Vegytani Intézet).

"Enzymatic Formation of the Disulfide Bridges of Ribonuclease."

Budapest, Acta Physiologica Academiae Scientiarum Hungaricae, Vol XXIV, No 1, 1963, pages 41-53.

Abstract: [English article, authors' English summary] An enzyme has been found in the pancreas of several animal species which is able to catalyze the reactivation of reduced bovine pancreatic ribonuclease. The enzyme has been partially purified from chicken and pig pancreas. A heat-stable factor was essential to the activity of the enzyme. This substance could be replaced by dehydroascorbic acid. The possible significance of these results in the problem of protein biosynthesis is discussed. 1 Chinese, 23 Western references.

1/1

KRAUSE, E.-G.; VENETIANER, P.; STRAUB, F.B.

On the nature of the oxidizing factor involved in the enzymic reactivation of reduced ribonuclease. Acta physiol. acad. sci. Hung. 27 no.4:295-301 '65.

1. Institute of Medical Chemistry, University Medical School, Budapest.

VENETIANER, P.; STRAUB, F.B.

Studies of the mechanism of action of the ribonuclease-reactivating enzyme. Acta physiol. acad. sci. Hung. 27 no.4:303-315 '65.

1. Institute of Medical Chemistry, University Medical School, Budapest.

STKAUB, GYULA

Determination of thiosulfate and sulfite in a galvanic bath of copper cyanide. Gyula Straub and Sándor A. Kisa (Univ. Chem. Ind., Veszprem, Hung.). *Magyar Kém. Folyóirat* 61, 43-5 (1955).—Thiosulfate is converted by addn. of KCN to thiocyanate, interfering ions are removed by addn. of HgCl<sub>2</sub>, and thiocyanate is detd. after treatment with FeCl<sub>3</sub> by photometry. Sulfite is pptd. in a separate sample by BaCl<sub>2</sub>, the ppt. treated with HCl. The H<sub>2</sub>SO<sub>4</sub> liberated is detd. by iodometry. Thiosulfate content is subtracted from the iodometric titration result to yield sulfite content. I. Finally

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STRAUB, Gyula; HAZI, Endre

Structural analysis of substances by means of radioactive gamma rays with the aid of the Geiger-Muller counters.  
Veszprem vegyip egy kozl 3 no.1/4:263-266 '59.

1. Veszpremi Vegyipari Egyetem Analitikai Kemia Tanszek.

STRAUB, Gyula; RATKOVICNE SCHUTZ, Rozsa

Application of fluorones in analytic chemistry, Pt.2. Veszprem  
vegyp egy kozl 4 no.2:101-113 '60

1. Veszpremi Vegyipari Egyetem Analitikai Kemiai Tanszek.

STRAUB, Gyula; HALASZ, Andras; BIRO, Jozsef

Application of fluorones in analytic chemistry. Pt.4. Veszprem  
vegyp egy kozl 4 no.2:123-132 '60

1. Veszpremi Vegyipari Egyetem Analitikai Kemiai Tanszek.

STRAUB, Gyula; KOCSIS, Zsuzsa

Effect of radioactive radiation on semiconductors. Pt.1.  
Veszprem vegyip egy kozl 8 no.1:1-8 '64.

1. Chair of Radiochemistry of the Chemical Industry University,  
Veszprem. Submitted March 14, 1964.

STRAUB

Dispersion hardening of tin bronzes. Fryderyk Straub  
and Mieczysław Tokarski. *Rudy i Metale Nieżelazne* 2,  
8-13(1957).—A bronze contg. Cu 93.84, Sn 5.98, Fe 0.11,  
Ni 0.006, P 0.004, heated for 4 hrs. at 700° and aged at  
250° for 48-96 hrs. underwent dispersion hardening. After  
hardening, the specific resistance diminished on an av. of  
0.000571  $\mu\text{m. sq. mm./m.}$  as a result of considerable en-  
largement of grains and diminution of stresses. Specific  
resistance increased after aging. The results confirmed the  
Konobiejewski hypothesis on slow decompn. of supersatd.  
phases. Z. Kurtas

STRAUB, GY.

New photometric determination of molybdenum. p. 100. (Magyar Kemiai Folyoirat, Budapest, Vol. 59, no. 4, Apr.1953)

SO: Monthly list of East European Accessions 'EEAL), LC Vol 4, No. 6, June 1955, Uncl

STRAUB, Gyorgy

Thermodynamic examination of subterranean spaces. Epuletgepeszet  
13 no. 2:71-73 Ap '64.

STRAUB, Janos

1964

WATER

c/1957

STRAUBE, R.

Mountain quakes, p. 237, UHLI (Ministerstvo paliv a energetiky) Praha,  
Vol. 5, No. 7, July 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,  
Vol. 4, No. 12, December, 1955

STRAUB, Robert

Snake venoms and their antidotes. Cesk. farm. 2 no.5:171-172 May 1953.  
(CML 25:1)

NEJEDLY, Karel; STRAUB, Robert

Spontaneous spindle cell sarcoma in guinea pigs. Neoplasma, Bratisl.  
4 no.4:402-404 1957.

1. Staatliches Institut fur Heilmittelkontrolle, Praha.  
(SARCOMA, pathol.

spindle cell, spontaneous of connective tissue in guinea  
pig)

(CONNECTIVE TISSUE, neoplasms

spindle cell sarcoma, spontaneous in guinea pig, pathol.)

CZECHOSLOVAKIA/Pharmacology and Toxicology - Cardiovascular Agents. V-6

Abs Jour : Ref Zhur - Biol., No 21, 1958, 98537

Author : Straub, Robert; Hrubec, Vladimir

List : -

Title : Cardiac Glycosides of Erysimum Cheiranthoides L.

Orig Pub : Ceskosl. farmac., 1957, 6, No 6, 296-298

Abstract : Two Czechoslovakian and Soviet authors note the good cardiotonic action of glycosides of Erysimum cheiranthoides L. (ECL), their good effect in valvular diseases, cor pulmonare, and also their lesser toxicity as compared with strophanthin. In experiments on guinea pigs and on cats, the cardiotonic action of the mixture of pure crystalline glycosides of ECL was investigated. The basis of the experiments was a determination of LD. By these methods, LD for digitoxine and g-strophanthin were established. It is proven that ECL, according to their effect, are close to strophanthin, which is also confirmed by Soviet authors.

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STRAUB, Roman

On the results of the verification of white collar employees  
of enterprises of the branch administration of chemical  
industries. Przem chem 39 nl.8:471-475 Ag '60.

1. Ministerstwo Przemyslu Chemicznego, Warszawa

STRAUB, Roman

Verification of the qualifications of the employees of the  
chemical industries. Przegl techn no.46:3,6 16 N '60.

STRAUCH, Alexander, Ing.Chem.

Galvanization technologies used in the German Democratic Republic  
and their automation. Gep 14 no.3:111-113 Mr '62.

1. VEB Galvanotechnik, Leipzig

STRAUCH, E.

"The earth's atmosphere. p. 3." (GAZETA OBSERWATORA), Vol. 6, no. 6, June 1953, Warszawa, Poland

So: Monthly List of East European Accessions L. C. Vol. 2, No. 11, Nov. 1953, Uncl.

of 1911, ...

"In the ... of ..."

... .., ... .., Vol. 6, No. 2, Sept. 1911, p. 5

See: ... .., Vol. 3, No. 10, Oct 1911, Lib. of Congress

STRAUCH

Category : POLAND/General Problems - Problems of Teaching

A-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 2806

Author : Strauch, Edward

Title : How Hail is Formed

Orig Pub : Fiz. szkole. 1955, 1, No 6, 292-298

Abstract : Popular article

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23,5000

AUTHOR:

Strauch, Edward

TITLE:

Physical Foundations of the Application of Filters in Cloud Photography

PERIODICAL:

Przegląd Geofizyczny (d. Przegląd Meteorologiczny i Hydrologiczny),  
1960, No. 1, pp 41 - 48

TEXT:

In this article the author discusses optical properties of clouds as well as photographic emulsions and filters suitable for cloud photography. In order to have scientific value a cloud photograph must meet two basic requirements. It must accurately reproduce details of the photographed object, and should show sufficient contrast. If the proper lense is used, a correct image on the negative will only be obtained by application of the proper color filter. The function of the filter in cloud photography is to adapt the distribution of energy in the spectrum of the source of light, in this case the cloud, to the spectral sensitivity of the negative. Distribution of energy in the spectrum of radiation which reaches the earth differs from the distribution of energy in the spectrum of the original solar radiation [Ref. 8]. The diffusion of radiation depends on the size of the diffusing elements. According to the size of the diffusing particles, the value

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# Physical Foundations of the Application of Filters in Cloud Photography

rays longer than  $600 \text{ m}\mu$  (Polish Film Omega). Panchromatic emulsions are sensitive to the entire spectrum range but they can be subdivided into two sub-groups, orthopanchromatic and superpanchromatic, highly sensitive to the red rays (Polish Ultrapan up to  $630 \text{ m}\mu$ , Agfa PSS up to  $670 \text{ m}\mu$ ). The most contrasting picture of a cloud against the back-ground of the sky will be obtained if we utilize the range of spectrum of radiation passed by the cloud, which has an energy that differs most from the energy of the same spectral range, which is received during a cloudless sky. In order to get most of the details the yellow, orange and red part of the spectrum should be utilized. In case of an orthochromatic negative the most suitable is the yellow filter, which makes it possible to utilize the radiation of a wave length greater than  $540 \text{ m}\mu$ . The best is the Agfa yellow filter. Shortly after sunrise or before sunset application of a lighter yellow filter will be sufficient. If an orthopanchromatic negative is used the utilized range of radiation can be extended in the direction of longer waves. The same Agfa yellow filter will

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Physical Foundations of the Application of Filters in Cloud Photography

do. An orange filter can also be used. There are 10 graphs, 2 tables, and 10 references, 3 of which are Polish, 3 German, 2 Soviet, 1 American and 1 English.

ASSOCIATION: PIHM - Warszawa

SUBMITTED: April 20, 1958

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STRAUCH, Edward

Observations of radio disturbances as seen from the meteorological aspect. Przegl geofiz 8 no.3:173-178 '63.

1. Zaklad Aerologii, Panstwowy Instytut Hydrologiczno-Meteorologiczny, Warszawa.

L 111140-65 EWT(1)/FCG P1-4 AFTCA/APGCA GW  
ACCESSION NR: AP4042065 P/0027/64/000/002/0157/0172

AUTHOR: Jaworska, Bogumila; Strauch, Edward; Walczewski, Jacek B

TITLE: Techniques for investigating the structure of clouds by means of aircraft 12

SOURCE: Przegląd geofizyczny, no. 2, 1964, 157-172

TOPIC TAGS: cloud structure, cloud seeding, aerological instrumentation, aircraft cloud seeding, cloud seeding explosive 12

ABSTRACT: The present state of research on cloud structure conducted since 1961 by the Aerological Division of the State Institute of Hydrology and Meteorology (Poland) is discussed at length. Methods used operationally by the Division for aircraft observation of the drop spectrum and liquid water content of clouds are described, as are the measuring instruments designed in the Institute's workshops. In measuring drop spectrum, samples of water drops are taken from the clouds by means of a glass platelet coated with an oil film. The liquid water content of clouds is measured by the trace method, which consists in collecting falling cloud drops on filter paper coated with a dye which dissolves in water but does not react to the water vapor

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